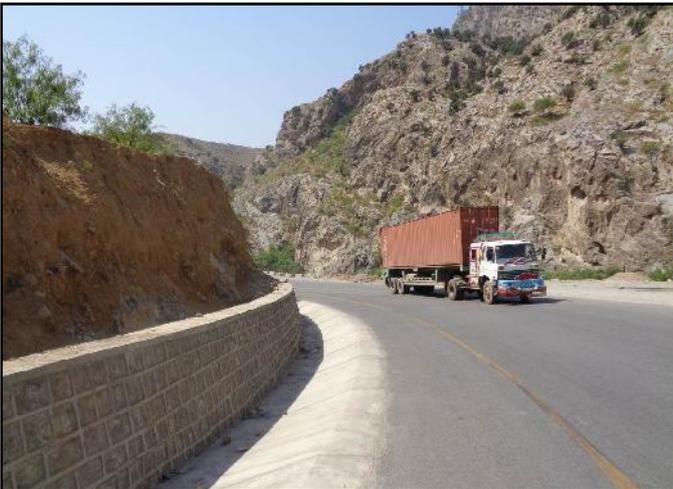




USAID
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PAKISTAN

CONSTRUCTION MONITORING & EVALUATION PROGRAM
(Strengthening & Improvement of Peshawar – Torkham Road, Khyber Agency)



MONTHLY PROGRESS REPORT # 31

OCTOBER 2015

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EXECUTIVE SUMMARY

Both flexible and rigid pavements of 45 km out of *46 km length have been substantially completed and are open for traffic. Total physical progress is 95% with accruals of US\$ 71,742,234 out of US\$ 75,613,533. The total amount certified by the end of this month was US\$ 61,575,481 out of US\$ 75,613,533.

PIL wise progress is as follows:

- **PIL 01** (*Section-I km 0+000 – km 9+000*):
100% completed, and all milestones certified with accrued expenditure of US\$ 9,978,082
- **PIL 02** (*Section-II km 9+000 – km 14+000*):
100% completed, and all milestones certified with accrued expenditure of US\$ 9,383,484
- **PIL 03** (*Section-III km 14+000 – km 19+000*):
100% completed, and all milestones certified with accrued expenditure of US\$ 9,512,705
- **PIL 04** (*Bridges at km9+560 & km23+750; Multi cell culverts at km11+190 & km22+925*):
100% completed, and all milestones certified with accrued expenditure of US\$ 3,668,533
- **PIL 05** (*Section-IV km 19+000 km 21+100 & km 22+400- km 24+000 & Loop # 02; Section-V km 21+100 - 22+400 and 24+000 - 29+000; Section-VI km 29+000- 33+000; Construction of Bridges at km 18+475, km 27+000 & km 27+250; Rehabilitation of Bridges at km 2+200, km 11+560 & km 21+320*):
Progress achieved during the reporting month was 2% attaining total physical progress 94% with accrued expenditure of US\$ 20,919,985 out of US\$ 25,444,269.
- **PIL 06** (*Section-VII km 33+000 - km 37+000 ; Section-VIII km 37+000 - km 41+000*)
Progress achieved during the reporting month was 5% attaining total physical progress 84% with accrued expenditure of US\$ 8,112,694 out of US\$ 17,626,462.

Construction activities in road Section-IX (km 41+000 - 43+465) & LOOP-3 were also monitored. This section is part of an activity agreement; however, PIL for this section has not yet been constituted.

*Note: In Contract 46 Km is given however as per site With-out loop = Km 43.465; With Loop = Km 48.479

MATTERS REQUIRING ATTENTION

1. Constitution of Remaining PILs

As per activity agreement, US\$ 87,000,000 has been obligated for the PTR project. However US\$ 75,613,533 consisting of 06 PILs has been approved till reporting month. The Constitution of remaining PILs is under way. Work is monitored by AGES and reported to USAID accordingly

2. Incomplete Works at Bhagiari Check Post, Road Side Drains and Backfill

Workmanship, quality issues and as-built drawings of the Bhagiari Check Post are yet to be addressed in spite of repeated requests to FWO. Moreover, proper inlets and outlet finishing details of the roadside drains have yet to be completed, and none of the Cascades for culverts given in the drawing is site-specific, a case in point is loop 3. Payment of road side drains would be deferred until backfilling on both sides of the drain is completed. There is no site specific design, nor profile drawing for the roadside drain as such in some places the invert level of drain is lower than the level of outfall; in some stretches of the road, the top level of the road side drain wall is higher than the shoulder level thus preventing the surface runoff into the drain. All the above reflects very badly on the professional abilities and performance of FWO/NESPAK.

3. Quality of Stone Masonry

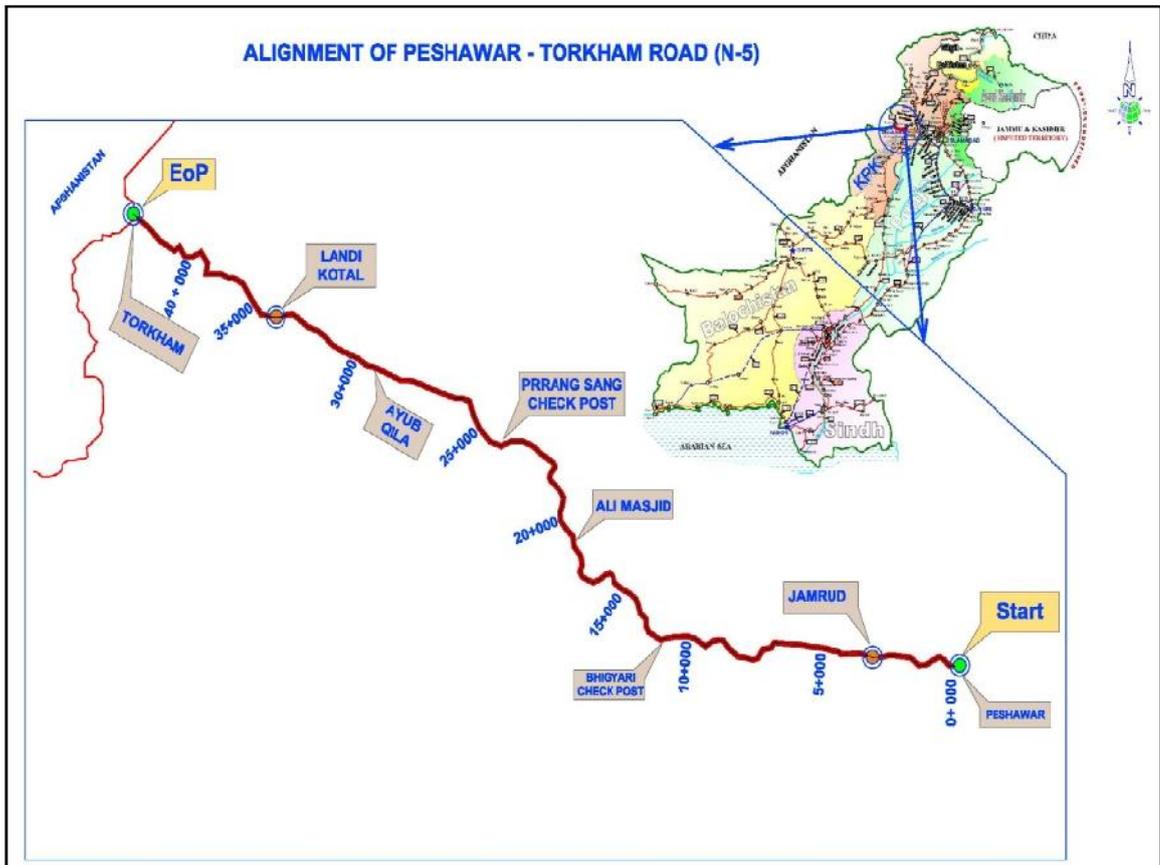
The Quality of Stone masonry is not up to the mark. No effort is being made to improve it.

4. Rigid Pavement

The materials for the joints sealant used in the rigid pavement are not as per specifications. If timely corrective measures are not undertaken this may delay the certifications of the rigid pavement.

1. PROJECT BACKGROUND

The Peshawar–Torkham road is an integral part of National Highway (N-5), a vital piece of the nation’s infrastructure, which connects Pakistan with Afghanistan at Torkham border and plays an important role in the economic activities as well as providing timely logistic support to the security agencies deployed in Khyber Agency. In order to strengthen and improve Peshawar road an Activity Agreement between FATA Secretariat & US Agency of International developments was signed on September 18, 2012 obligating US\$ 67,000 Million for the project.



The project is implemented by FATA Secretariat as a project proponent through Frontier Works Organization (FWO) as EPC (Engineer, Procure, and Construct) Contractor. Being an EPC form of contract, FWO is fully responsible for the design and construction of the project in conformity with the NHA’s specifications and standard engineering practices. NESPAK is providing design and quality control services to FWO. While AGES Consultants has been entrusted with the Construction Monitoring and Evaluation Services, including Quality Assurance and Environmental Monitoring of the project on behalf of the USAID Pakistan Mission by signing agreement on September 30, 2012. Construction activities by the contractor started on October 15, 2012. Initially agreed completion date of December 31, 2014, as per Article 4 of the Activity Agreement No AID-015-DOD has now been extended to December 31, 2015.

1.1 Scope of Work

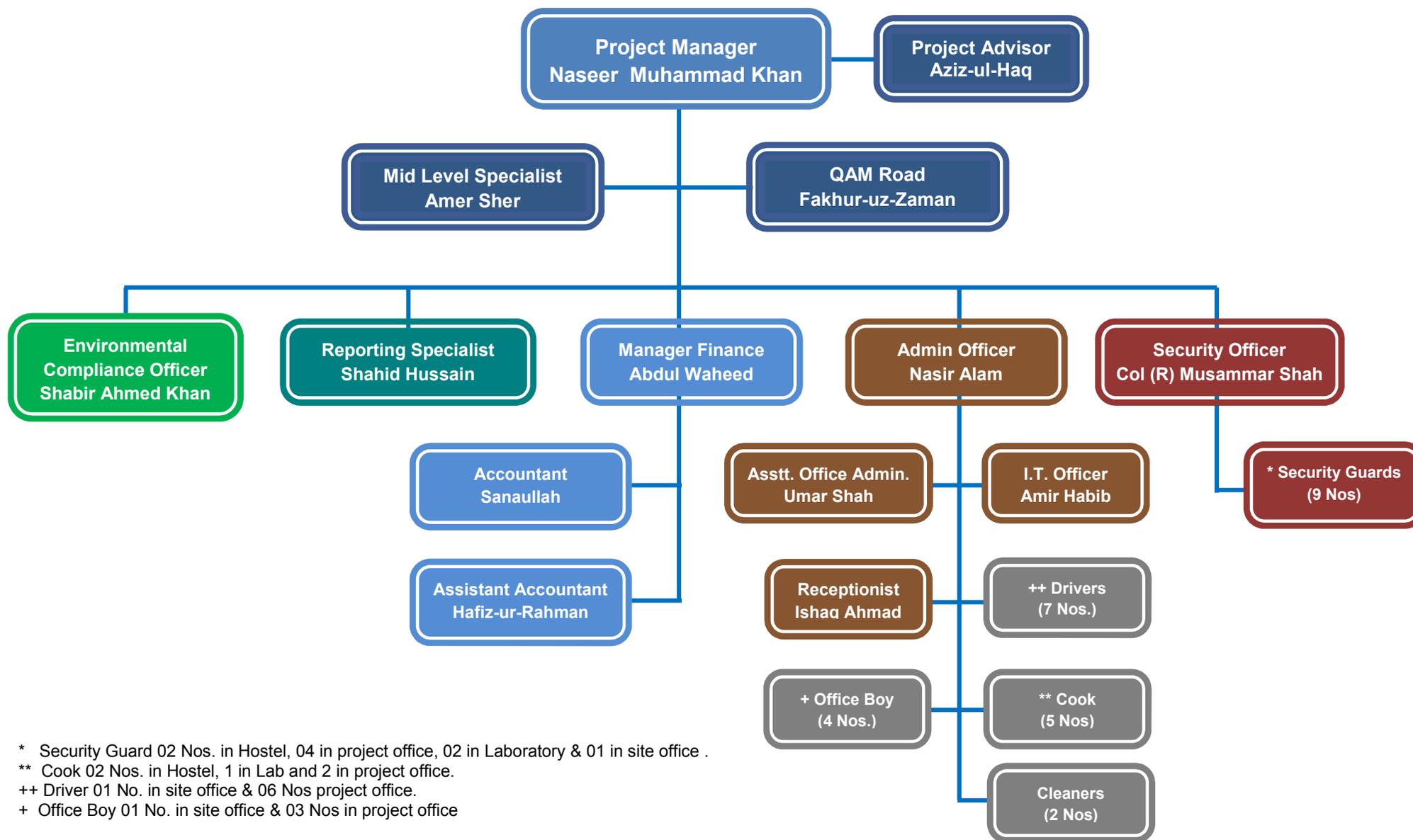
As per activity agreement the 46 km Peshawar – Torkham road has been split into multiple sections for designing / construction purposes. PIL wise detail is given in the table below:

PIL No	Components	Allocated Amount US\$	PIL Signing Date	PIL Expiry Date
PIL 01	a) Section-I (km 0+000 - km 9+000)	9,978,082	Jan 10, 2013	Dec 31, 2014
PIL 02	a) Section-II (km 9+000 - km 14+000)	9,383,484	Dec 18, 2013	Dec 31, 2014
PIL 03	a) Section-III (km 14+000 - km 19+000)	9,512,705	Feb 04, 2014	Dec 31, 2014
PIL 04	a) Construction of Bridge at km 9+560 b) Construction of Bridge at km 23+750 c) Multi cell Culvert at km 11+190 d) Multi cell Culvert km 22+925	3,668,533	Jan 27, 2014	Dec 31, 2014
PIL 05	a) Section-IV (km 19+000 – km 21+100 & km 22+400 – km 24+000 & Loop # 02) b) Section-V (km 21+100 - km 22+400 & km 24+000 – km 29+000) c) Section-VI (km 29+000 – km 33+000) d) Construction of Bridge at km 18+475 e) Construction of Bridge at km 27+000 f) Construction of Bridge at km 27+250 g) Repair of Bridge at km 2+200 h) Repair of Bridge at km 11+560 i) Repair of Bridge at km 21+320	25,444,269	April 06, 2015	Dec 31, 2015
PIL 06	a) Section-VII (km 33+000 – km 37+000) b) Section-VIII (km 37+000 - km 41+000)	17,626,462	Sep 22, 2015	Dec 31, 2015
PIL to be Constituted	a) Section-IX (km 41+000 – km 43+465 & Loop3)	-	-	-

1.2 Mobilization of Staff

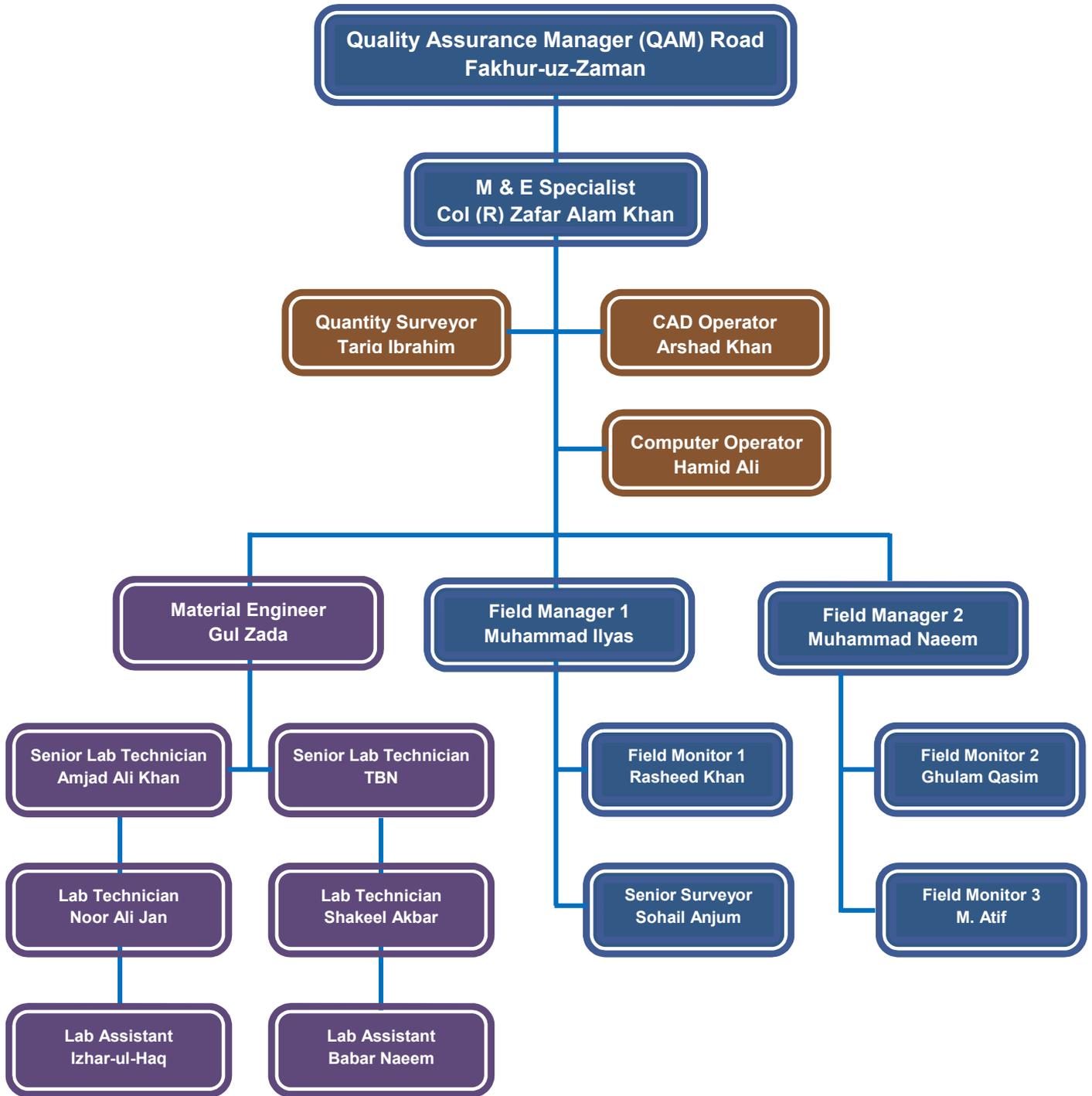
The following members of the team were mobilized as various activities of the project progressed. Other staff members will be mobilized according to the demands of work load.

Organization Chart for CMEP Office, Peshawar



* Security Guard 02 Nos. in Hostel, 04 in project office, 02 in Laboratory & 01 in site office .
 ** Cook 02 Nos. in Hostel, 1 in Lab and 2 in project office.
 ++ Driver 01 No. in site office & 06 Nos project office.
 + Office Boy 01 No. in site office & 03 Nos in project office

Organization Chart for Road Component of CMEP Project



2. PHYSICAL PROGRESS (PIL 05 & PIL 06)

2.1 Section-IV (Km 19+000 to Km 21+100 & Km 22+400 to Km 24+000 & Loop # 02)

Sr No.	Section IV (Km 19+000 to Km 21+100 & Km 22+400 to Km 24+000 & Loop # 02)	Total No of Milestones	Till Previous Month		Current Month		Total	
			No of Milestones Achieved	Percentage Completed	No of Milestones Achieved	Percentage Completed	No of Milestones Achieved	Percentage Completed
1	Earth work	10.32	10.32	100%	-	-	10.32	100%
2	Sub base & base course							
a	Granular sub base	10.32	10.32	100%	-	-	10.32	100%
b	Water bound macadam	7.08	7.08	100%	-	-	7.08	100%
c	Asphaltic base course	7.08	7.08	100%	-	-	7.08	100%
3	Surface courses and pavement							
a	Asphaltic concrete for wearing course & allied activities	7.08	7.08	100%	-	-	7.08	100%
b	Rigid pavement (Half Pavement Width)	6.48	6.48	100%	-	-	6.48	100%
4a-i	Retaining wall (RW-2) Total L = 4025 m							
a	Retaining wall : H= 1.00 m ; L= 500m	2.00	2.00	100%	-	-	2.00	100%
b	Retaining wall : H= 1.5 m ; L= 900m	3.00	2.41	80%	0.05	2%	2.46	82%
c	Retaining wall : H= 3.0 m ; L= 50m	1.00	1.00	100%	-	-	1.00	100%
d	Retaining wall : H= 3.5 m ; L= 575m	5.75	3.49	61%	0.00	0%	3.49	61%
e	Retaining wall : H= 4.0 m ; L= 875m	8.75	6.29	72%	0.00	0%	6.29	72%
f	Retaining wall : H= 5.0 m ; L= 125m	1.00	1.00	100%	-	-	1.00	100%
g	Retaining wall : H= 6.0 m ; L= 750m	15.00	14.30	95%	0.00	0%	14.30	95%
h	Retaining wall: H= 8.0 m ; L= 250m	5.00	5.00	100%	-	-	5.00	100%
4a-ii	Breast wall - 325m	3.25	2.88	88 %	0.30	9%	3.18	98 %
4b-i	Construction of New culverts-Flexible pavement							
i	1 x 2 x 2.5	1.00	1.00	100%	-	-	1.00	100%
ii	1 x 2 x 2.5 (20 deg skew)	2.00	2.00	100%	-	-	2.00	100%
iii	1 x 2 x 2.5 (20 deg skew) - loop # 2	2.00	2.00	100%	-	-	2.00	100%
4b-ii	Construction of New culverts (replacement of old) -Flexible pavement							
i	2 x 3 x 2.5	1.00	1.00	100%	-	-	1.00	100%
ii	2 x 3 x 2.0	1.00	0.95	95%	0.05	5%	1.00	100%
iii	1 x 2 x 3 - loop # 2	1.00	1.00	100%	-	-	1.00	100%
iv	1 x 2 x 3 (15 deg skew) - loop # 2	1.00	1.00	100%	-	-	1.00	100%
v	1 x 2 x 2.5 - loop # 2	1.00	1.00	100%	-	-	1.00	100%
4b-iii	Construction of new culverts (replacement of old) rigid pavement 1 x 2 x 2.5 - loop # 2, 1 x 2 x 3 loop #2, Service ducts	1.00	1.00	100%	-	-	1.00	100%
5a	Drainage & erosion works (road side drain)							
i	Drain type D-1 covered (150 m)	1.00	0.24	24%	0.00	0%	0.24	24%
ii	Drain type D-1a uncovered (400 m)	1.00	1.00	100%	-	-	1.00	100%
iii	Drain type D-2 covered (225 m)	1.00	0.77	77%	0.00	0%	0.77	77%
iv	Drain type D-2a uncovered (200 m)	1.00	0.55	55%	0.00	0%	0.55	55%
v	Drain type D-4 (700 m)	2.00	2.00	100%	-	-	2.00	100%
vi	Drain type D-3 (3511 m)	7.02	6.63	94%	0.00	0%	6.63	94%
5b	Road protection works : Metal guard rail (50m) , Barrier (200m)	1.00	0.75	75%	0.25	25%	1.00	100%
6	Ancillary works(traffic road signs, pavement marking / studs & km posts)	1.00	0.40	40%	0.10	10%	0.50	50%
7	Diversion	5.16	5.16	100%	-	-	5.16	100%
TOTAL		124.30	115.19	96%	0.76	1%	115.93	97%

2.2 Section-V (Km 21+100 - 22+400 & 24+000- 29+000)

Sr No.	Section V (Km 21+100 - 22+400 & 24+000- 29+000)	No of Milestones	Till Previous Month		Current Month		Total	
			No of Milestones Achieved	Percentage Completed	No of Milestones Achieved	Percentage Completed	No of Milestones Achieved	Percentage Completed
1	Earth work	12.600	12.60	100%	-	-	12.60	100%
2	Sub base & base course				-	-		
a	Granular sub base	12.600	12.60	100%	-	-	12.60	100%
b	Water bound macadam	10.472	10.47	100%	-	-	10.47	100%
c	Asphaltic base course	10.472	10.47	100%	-	-	10.47	100%
3	Surface courses and pavement				-	-		
a	Asphaltic concrete for wearing course & allied activities	10.472	10.47	100%	-	-	10.47	100%
b	Rigid pavement (Half Pavement Width)	2.900	2.90	100%	-	-	2.90	100%
4a-i	Retaining wall (RW-2) Total L = 3375 m							
a	Retaining wall : H= 1.00 m ; L= 925m	3.083	3.08	100%	-	-	3.08	100%
b	Retaining wall : H= 2.5 m ; L= 350m	2.000	2.00	100%	-	-	2.00	100%
c	Retaining wall : H= 3.0 m ; L= 925m	3.083	2.70	88%	0.30	9%	3.00	97%
d	Retaining wall : H= 3.5 m ; L= 300m	2.000	2.00	100%	-	-	2.00	100%
e	Retaining wall : H= 4.0 m ; L= 350m	2.000	2.00	100%	-	-	2.00	100%
f	Retaining wall : H= 4.5 m ; L= 50m	1.000	1.00	100%	-	-	1.00	100%
g	Retaining wall : H= 5.0 m ; L= 50m	1.000	1.00	100%	-	-	1.00	100%
h	Retaining wall: H= 6.0 m ; L= 325m	3.250	3.25	100%	-	-	3.25	100%
i	Retaining wall: H= 7.0 m ; L= 100m	1.000	0.70	70%	0.00	0%	0.70	70%
j	Parapet walls : L = 925 m	5.000	3.00	60%	0.00	0%	3.00	60%
k	Retaining wall (PCC): H= 3.0 m; L= 400m	3.000	1.85	62%	1.15	38%	3.00	100%
4a-ii	Breast wall - 455m				-	-		
a	Breast wall (RW-3) H=2.0 m , L=55 m	1.000	1.00	100%	-	-	1.00	100%
b	Breast wall (RW-3) H=3.0 m , L= 400 m	2.000	2.00	100%	-	-	2.00	100%
4b-i	Construction of New culverts-Flexible pavement				-	-		
i	1 x 2 x 2.5	1.000	1.00	100%	-	-	1.00	100%
ii	1 x 3 x 2.5	1.000	1.00	100%	-	-	1.00	100%
4b-ii	Construction of New culverts (replacement of old) -Flexible pavement				-	-		
i	1x 2 x 2.5 (20 deg skew)	3.000	3.00	100%	-	-	3.00	100%
ii	1 x 3 x 2	2.000	2.00	100%	-	-	2.00	100%
iii	1 x 3 x 2.5	1.000	1.00	100%	-	-	1.00	100%
iv	3 x 3 x 4 (20 deg skew)	1.000	0.00	0%	0.00	0%	0.00	0%
v	2 x 3 x 3 (20 deg skew)	1.000	0.95	95%	0.00	0%	0.95	95%
vi	2 x 3 x 2.5 (45 deg skew)	1.000	1.00	100%	-	-	1.00	100%
vii	3 x 3 x 2.5 (20 deg skew)	1.000	1.00	100%	-	-	1.00	100%
viii	1 x 3 x 4 (25 deg skew)	1.000	1.00	100%	-	-	1.00	100%
ix	Service ducts (17 Nos)	17.000	17.00	100%	-	-	17.00	100%
4b-iii	Construction of causeways L = 234.00 m	1.000	0.75	75%	0.25	25%	1.00	100%
5a	Drainage & erosion works (road side drain)				-	-		
i	Drain type D-1 covered (800 m)	4.000	2.03	50%	0.47	12%	2.49	62%
ii	Drain type D-1a uncovered (1600 m)	4.000	3.91	98%	0.09	2%	4.00	100%
iii	Drain type D-2 covered (1225 m)	3.063	1.71	56%	0.00	0%	1.71	56%
iv	Drain type D-2a uncovered (2240 m)	4.978	4.98	100%	-	-	4.98	100%
v	Drain type D-4 (475 m)	1.000	0.91	91%	0.08	8%	0.99	99%
vi	Drain type D-3 (225 m)	1.000	1.00	100%	-	-	1.00	100%
6	Ancillary works(traffic road signs, pavement marking / studs & km posts)				-	-		
i	Traffic signs / Km Posts	1.000	0.10	10%	0.40	40%	0.50	50%
ii	Pavement Markings / Studs	1.000	0.75	75%	0.10	10%	0.85	85%
7	Diversion	6.300	6.30	100%	-	-	6.30	100%
TOTAL		146.273	136.48	94%	2.84	2%	139.32	96%

2.3 Section-VI (Km 29+000 - 33+000)

Sr No	Section VI (Km 29+000 – 33+000)	No of Milestones	Till Previous Month		Current Month		Total	
			No of Milestones Achieved	Percentage Completed	No of Milestones Achieved	Percentage Completed	No of Milestones Achieved	Percentage Completed
1	Earth work	8.000	8.00	100%	-	-	8.00	100%
2	Sub base & base course							
a	Granular sub base	8.000	8.00	100%	-	-	8.00	100%
b	Water bound macadam	6.030	6.03	100%	-	-	6.03	100%
c	Asphaltic base course	6.030	6.03	100%	-	-	6.03	100%
d	Earthen dowel	1.000	1.00	100%	-	-	1.00	100%
3	Surface courses and pavement							
a	Asphaltic concrete for wearing course & allied activities	6.030	6.03	100%	-	-	6.03	100%
b	Rigid pavement (Half Pavement Width)	2.880	2.88	100%	-	-	2.88	100%
4a	Retaining wall (RW-2) Total L = 1175 m				-	-		
a	Retaining wall : H= 2.5 m ; L= 275m	2.750	2.09	76%	0.00	0%	2.09	76%
b	Retaining wall : H= 3.0 m ; L= 450m	4.500	4.05	90%	0.00	0%	4.05	90%
c	Retaining wall : H= 3.5 m ; L= 100m	1.000	1.00	100%	-	-	1.00	100%
d	Retaining wall : H= 4.0 m ; L= 100m	1.000	1.00	100%	-	-	1.00	100%
e	Retaining wall : H= 4.5 m ; L= 250m	2.500	2.50	100%	-	-	2.50	100%
4b-i	Construction of New culverts-Flexible pavement 1 x 2 x 3.5 (40 deg skew)	1.000	1.00	100%	-	-	1.00	100%
4b-ii	Construction of New culverts (replacement of existing) -Flexible pavement							
i	1x 2 x 4.5 (20 deg skew)	1.000	1.00	100%	-	-	1.00	100%
ii	1 x 2 x 3 (25 deg skew)	1.000	1.00	100%	-	-	1.00	100%
iii	2 x 3 x 5 (25 deg skew)	1.000	1.00	100%	-	-	1.00	100%
4b-iii	Construction of New culverts on W&S road							
i	1 x 2 x 2 (14.70 m length)	2.000	0.00	0%	0.20	10%	0.20	10%
ii	1 x 2 x 2 (12.00 m length)	1.000	0.20	20%	0.20	20%	0.40	40%
iii	Service ducts	13.000	13.00	100%	-	-	13.00	100%
4c	Construction of causeways L = 265.00 m	1.000	0.70	70%	0.20	20%	0.90	90%
5a	Drainage & erosion works (road side drain)							
i	Drain type D-1 covered (625 m)	1.250	0.97	77%	0.00	0%	0.97	77%
ii	Drain type D-1a uncovered (2400 m)	4.800	4.80	100%	-	-	4.80	100%
iii	Drain type D-2 covered (450 m)	1.000	0.61	61%	0.00	0%	0.61	61%
iv	Drain type D-2a uncovered (1225 m)	2.450	2.45	100%	-	-	2.45	100%
v	Drain type D-4 (525 m)	1.000	0.70	70%	0.23	23%	0.92	92%
vi	Drain type D-3 (100 m)	1.000	1.00	100%	-	-	1.00	100%
vii	Drain type D-3 (225 m) W&S Road	1.000	0.00	0%	0.00	0%	0.00	0%
5b	Road Protection works							
i	Stone Pitching (350 m) W&S Road	1.000	0.00	0%	0.00	0%	0.00	0%
ii	Gabion (300m)	1.000	0.00	0%	0.85	85%	0.85	85%
6	Ancillary works(traffic road signs, pavement marking / studs & km posts)							
i	Traffic signs / Km Posts	1.000	0.10	10%	0.40	40%	0.50	50%
ii	Pavement Markings / Studs	1.000	0.75	75%	0.00	0%	0.75	75%
7	Diversion	4.000	4.00	100%	-	-	4.00	100%
8a	Monuments & Weigh Station							
i	Weight Station (2Nos)	1.000	0.30	30%	0.05	5%	0.35	35%
ii	Monuments (01 Nos)	1.000	1.00	100%	-	-	1.00	100%
8b	Relocation of Buildings							
i	Relocation of Boundary walls	1.000	0.80	80%	0.00	0%	0.80	80%
ii	Relocation of Buildings	1.000	0.75	75%	0.00	0%	0.75	75%
8c	Relocation of MES Water Supply line (Km 30+700 to 33+850)	1.000	1.00	100%	-	-	1.00	100%
TOTAL		96.220	85.73	87%	2.13	2%	87.86	89%

2.4 Bridge at Km 18+475

Sr No	Bridge at Km 18+475	No of Milestones	Till Previous Month		Current Month		Total	
			No of Milestones Achieved	Percentage Completed	No of Milestones Achieved	Percentage Completed	No of Milestones Achieved	Percentage Completed
1	Raft foundation , cut off wall , abut wall , abutment seal & wing wall							
a	Raft foundation , cut off wall	1.0	1.00	100%	-	-	1.00	100%
b	Granular sub base	1.0	1.00	100%	-	-	1.00	100%
2	Construction of Deck Slab	1.0	1.00	100%	-	-	1.00	100%
3	Dismantling, Structural Excavation, Backfilling , Drainage & Erosion , Rigid pavement & Ancillary works							
a	Dismantling,	1.0	1.00	100%	-	-	1.00	100%
b	Structural Excavation, Backfilling ,	1.0	1.00	100%	-	-	1.00	100%
c	Drainage & Erosion , Rigid pavement & Ancillary works	1.0	1.00	100%	-	-	1.00	100%
d	Ancillary works	1.0	0.00	0%	0.00	0%	0.00	0%
TOTAL		7.0	6.00	99.6%	0.00	0%	6.00	99.6%

2.5 Bridge at Km 27+000

Sr No	Bridge at Km 27+000	No of Milestones	Till Previous Month		Current Month		Total	
			No of Milestones Achieved	Percentage Completed	No of Milestones Achieved	Percentage Completed	No of Milestones Achieved	Percentage Completed
1	Construction of Piles	1.0	1.00	100%	-	-	1.00	100%
2	Pile caps , abutment walls, Pier Shaft , Wing walls & Transom							
a	Pile caps	1.0	1.00	100%	-	-	1.00	100%
b	Abutment walls, Pier Shaft , Wing walls & Transom	1.0	1.00	100%	-	-	1.00	100%
3	Casting & Launching of precast panels				-	-		
a	Construction of Pre-cast panels	1.0	1.00	100%	-	-	1.00	100%
b	Launching of Pre-cast Panels	1.0	1.00	100%	-	-	1.00	100%
4	Construction of Deck Slab	1.0	1.00	100%	-	-	1.00	100%
5	Structural Excavation, Dismantling Backfilling , Earth work, surface course & pavement , drainage & Erosion & Ancillary works							
a	Excavate surplus common material , Dismantling of structures	1.0	0.50	50%	0.50	50%	0.50	50%
b	Surface course & pavement	1.0	1.00	100%	-	-	1.00	100%
c	Structures excavation & back fill	1.0	1.00	100%	-	-	1.00	100%
d	Approach slabs	1.0	1.00	100%	-	-	1.00	100%
e	Drainage & Erosion works	1.0	0.60	60%	0.40	40%	1.00	100%
f	Ancillary works	1.0	0.50	50%	0.00	0%	0.50	50%
TOTAL		12.0	10.60	88%	0.40	7%	11.00	95%

2.6 Bridge at Km 27+250

Sr No	Bridge at Km 27+250	No of Milestones	Till Previous Month		Current Month		Total	
			No of Milestones Achieved	Percentage Completed	No of Milestones Achieved	Percentage Completed	No of Milestones Achieved	Percentage Completed
1	Pile load test & Construction of Piles							
a	Pile load test	1.0	1.00	100%	-	-	1.00	100%
b	Construction of Piles	1.0	1.00	100%	-	-	1.00	100%
2	Pile caps , abutment walls, Pier Shaft , Wing walls & Transom							
a	Pile caps	1.0	1.00	100%	-	-	1.00	100%
b	Abutment walls, Pier Shaft , Wing walls & Transom	1.0	1.00	100%	-	-	1.00	100%
3	Casting & Launching of precast panels							
a	Construction of Pre-cast panels	1.0	1.00	100%	-	-	1.00	100%
b	Launching of Pre-cast Panels	1.0	1.00	100%	-	-	1.00	100%
4	Construction of Deck Slab	1.0	1.00	100%	-	-	1.00	100%
5	Structural Excavation, Dismantling Backfilling , Earth work , surface course & pavement , drainage & Erosion & Ancillary works							
a	Excavate surplus common material, Dismantling of structures	1.0	0.50	50%	0.00	0%	0.50	50%
b	Surface course & pavement	1.0	1.00	100%	-	-	1.00	100%
c	Structures excavation & back fill	1.0	1.00	100%	-	-	1.00	100%
d	Approach slabs	1.0	1.00	100%	-	-	1.00	100%
e	Drainage & Erosion works	1.0	0.75	75%	0.25	25%	1.00	100%
f	Ancillary works	1.0	0.20	20%	0.00	0%	0.20	20%
TOTAL		13.0	11.45	94%	0.25	2%	11.70	96%

2.7 Bridge at Km 2+200

Sr No.	Bridge at Km 2+200	No of Milestones	Till Previous Month		Current Month		Total	
			No of Milestones Achieved	Percentage Completed	No of Milestones Achieved	Percentage Completed	No of Milestones Achieved	Percentage Completed
1	Dismantling of Existing Expansion joint , concreting of new expansion joint & Installation of New Expansion joint							
a	Dismantling of Existing Expansion joint	1.0	0.00	0%	-	-	1.00	100%
b	Concreting of new expansion joint	1.0	0.00	0%	-	-	1.00	100%
c	Installation of New Expansion joint	1.0	0.00	0%	-	-	1.00	100%
TOTAL		3.0	0.00	0%	-	-	3.00	100%

2.8 Bridge at Km 11+560

Sr No	Bridge at Km 11+560	No of Milestones	Till Previous Month		Current Month		Total	
			No of Milestones Achieved	Percentage Accomplished	No of Milestones Achieved	Percentage Accomplished	No of Milestones Achieved	Percentage Accomplished
1	Dismantling of Existing Expansion joint , concreting of new expansion joint & Installation of New Expansion joint	1.0	1.00	100%	-	-	1.00	100%
2	Construction of PCC Protection wall & Random Rubble masonry wall	1.0	0.00	0%	1.00	100%	1.00	100%
TOTAL		2.0	1.00	36%	1.00	64%	2.00	100%

2.9 Bridge at Km 21+320

Sr No	Bridge at Km 21+320	No of Milestones	Till Previous Month		Current Month		Total	
			No of Milestones Achieved	Percentage Completed	No of Milestones Achieved	Percentage Completed	No of Milestones Achieved	Percentage Completed
1	Roll Pointing	1.0	0.00	0%	0.00	0%	0.00	0%
2	Dismantling of existing railing , Construction of new steel railing as per dwg , poly urethane paint on existing steel girders	1.0	0.00	0%	1.00	100%	1.00	100%
3	Pressure grouting of existing abutments	1.0	0.00		0.00	0%	0.00	0%
4	Scarification of existing road pavement , surface course & pavement, drainage & erosion works , Ancillary works							
a	Scarification of existing road pavement	1.0	0.00	0%	1.00	100%	1.00	100%
b	surface course & pavement	1.0	0.00	0%	1.00	100%	1.00	100%
c	drainage & erosion works	1.0	0.00	0%	0.85	85%	0.85	85%
d	Ancillary works	1.0	0.00	0%	0.50	50%	0.50	50%
TOTAL		7.0	0.00	0%	4.35	57%	4.35	57%

2.10 Section-VII (Km 33+000 to Km 37+000)

Sr No	Section VII (Km 33+000 – 37+000)	No of Milestones	Till Previous Month		Current Month		Total	
			No of Milestones Achieved	Percentage Completed	No of Milestones Achieved	Percentage Completed	No of Milestones Achieved	Percentage Completed
1	Earth work	8.00	7.65	96%	0.00	0%	7.65	96%
2	Sub base & base course							
a	Granular sub base	8.00	7.65	96%	0.00	0%	7.65	96%
b	Water bound macadam	6.50	6.15	95%	0.00	0%	6.15	95%
c	Asphaltic base course	6.50	6.15	95%	0.00	0%	6.15	95%
3	Surface courses and pavement							
a	Asphaltic concrete for wearing course & allied activities	6.50	6.10	94%	0.00	0%	6.10	94%
b	Rigid pavement	3.00	3.00	100%	-	-	3.00	100%
4a	Retaining wall (RW-2) Total L = 1225 m							
a	Retaining wall : H= 1.00 m ; L= 300m	2.00	0.96	48%	0.00	0%	0.96	48%
b	Retaining wall : H= 1.50 m ; L= 50m	1.00	1.00	100%	-	-	1.00	100%
c	Retaining wall : H= 2.00 m ; L= 40m	1.00	0.95	95%	0.05	5%	1.00	100%
d	Retaining wall : H= 2.50 m ; L= 80m	1.00	1.00	100%	-	-	1.00	100%
e	Retaining wall : H= 3.00 m ; L= 250m	2.00	2.00	100%	-	-	2.00	100%
f	Retaining wall : H= 3.50 m ; L= 200m	2.00	2.00	100%	-	-	2.00	100%
g	Retaining wall : H= 4.00 m ; L= 50m	1.00	0.60	60%	0.00	0%	0.60	60%
h	Retaining wall : H= 6.00 m ; L= 225m	3.00	0.93	31%	0.67	22%	1.60	53%
i	Retaining wall : H= 8.00 m ; L= 30m	1.00	1.00	100%	-	-	1.00	100%
4b-i	Construction of New culverts-Flexible 90 cm pipe culvert	1.00	0.90	90%	0.00	0%	0.90	90%
4b-ii	Construction of New culverts (replacement of existing) -Flexible pavement							
i	1x 2 x 2 (15 deg skew)	1.00	0.95	95%	0.00	0%	0.95	95%
ii	1 x 2 x 5.5 (30 deg skew) box culvert	1.00	0.95	95%	0.00	0%	0.95	95%
iii	1 x 2 x 5.5 (30 deg skew) landikotal	1.00	0.95	95%	0.00	0%	0.95	95%
iv	2 x 3 x 6 (20 deg skew)	1.00	0.75	75%	0.10	10%	0.85	85%
v	1 x 3 x 5 (25 deg skew)	1.00	0.95	95%	0.05	5%	1.00	100%
vi	1 x 2 x 2.5 (25 deg skew)	1.00	0.20	20%	0.65	65%	0.85	85%
Vii	Service ducts	14.00	11.00	79%	0.00	0%	11.00	79%
Viii	Service Duct KM 37+000 – 41+000	1.00	0.00	0%	1.00	100%	1.00	100%
4c	Construction of causeways L = 38.0 m	1.00	0.50	50%	0.40	40%	0.90	90%
5a-1	Drainage & erosion works (road side drain) Km 33+000 – Km 37+000							
I	Drain type D-1 covered (2400 m)	6.00	2.00	33%	0.00	0%	2.00	33%
li	Drain type D-1 covered Dep (800 m)	2.00	1.00	50%	0.00	0%	1.00	50%
iii	Drain type D-1a uncovered (950 m)	2.00	2.00	100%	-	-	2.00	100%
iv	Drain type D-2a covered (200 m)	1.00	0.75	75%	0.15	15%	0.90	90%
v	Drain type D-3 (800 m)	1.00	0.75	75%	0.00	0%	0.75	75%
vi	Drain type D-4 (200 m)	1.00	0.00	0%	0.25	25%	0.25	25%
5a-2	Drainage & erosion works (road side drain) Km 37+000 – Km 41+000							
i	Drain type D-3a (Lean Concrete)	1.00	0.00	0%	1.00	100%	1.00	100%
ii	Drain type D-4 (925 m)	6.17	0.00	0%	0.00	0%	0.00	0%
5b	Road Protection works) Km 37+000 – Km 41+000							
i	Jersey barrier	1.00	0.75	75%	0.25	25%	1.00	100%
6a	Ancillary works Km 33+000 – 37+000							
i	Traffic signs / Km Posts	1.00	0.00	0%	0.00	0%	0.00	0%
ii	Pavement Markings / Studs	1.00	0.00	0%	0.00	0%	0.00	0%
6b	Ancillary works Km 37+000 – 41+000							
i	Traffic signs / Km Posts	1.00	0.00	0%	0.00	0%	0.00	0%
ii	Pavement Markings / Studs	1.00	0.00	0%	0.00	0%	0.00	0%
7a	Diversion Km 33+000 – 37+000	4.00	3.80	95%	0.00	0%	3.80	95%
7b	Diversion Km 37+000 – 41+000	4.00	3.95	99%	0.05	1%	4.00	100%

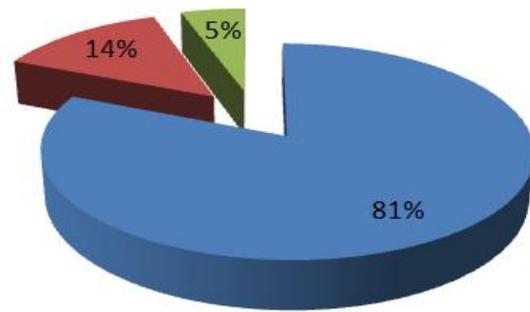
Sr No	Section VII (Km 33+000 – 37+000)	No of Milestones	Till Previous Month		Current Month		Total	
			No of Milestones Achieved	Percentage Completed	No of Milestones Achieved	Percentage Completed	No of Milestones Achieved	Percentage Completed
8a	Relocation of Buildings Km 33+000 – Km 37+000							
i	Relocation of Boundary walls	1.00	1.00	100%	-	-	1.00	100%
ii	Relocation of Buildings	1.00	0.80	80%	0.00	0%	0.80	80%
8b	Relocation of Buildings Km 37+000 – Km 41+000							
i	Relocation of Buildings	1.00	0.00	0%	0.00	0%	0.00	0%
9	Utilities Shifting / Relocation							
i	MES Water Supply	1.00	1.00	100%	-	-	1.00	100%
ii	PHE Water Supply	1.00	0.00	0%	0.00	0%	0.00	0%
iii	OFC Cable	1.00	0.00	0%	0.00	0%	0.00	0%
iv	Copper Cable	1.00	0.00	0%	0.00	0%	0.00	0%
v	OFC Cable	1.00	0.00	0%	0.00	0%	0.00	0%
vi	HT/LT Lines Km 9+00 – 35+00	2.00	0.00	0%	0.00	0%	0.00	0%
vii	HT /LT Lines Km 35+00 – 38+00	3.00	0.00	0%	0.00	0%	0.00	0%
TOTAL		121.67	82.09	71%	4.67	5%	86.76	76%

2.11 Section-VIII (Km 37+000 to Km 41+000)

Sr No	Section VIII (Km 37+000 – 41+000)	No of Milestones	Till Previous Month		Current Month		Total	
			No of Milestones Achieved	Percentage Completed	No of Milestones Achieved	Percentage Completed	No of Milestones Achieved	Percentage Completed
1	Earth work	8.00	8.00	100%	-	-	8.00	100%
2	Sub base & base course							
a	Granular sub base	8.00	7.90	99%	0.00	0%	7.90	99%
b	Water bound macadam	1.70	1.60	94%	0.00	0%	1.60	94%
c	Asphaltic base course	1.70	1.60	94%	0.00	0%	1.60	94%
3	Surface courses and pavement							
a	Asphaltic concrete for wearing course & allied activities	1.70	1.60	94%	0.00	0%	1.60	94%
b	Rigid pavement	12.60	12.60	100%	-	-	12.60	100%
4a-i	Retaining wall (RW-2) Total L = 2495 m							
a	Retaining wall : H= 1.50 m ; L= 1225m	6.13	3.73	61%	0.89	15%	4.62	76%
b	Retaining wall : H= 2.00 m ; L= 275m	1.80	1.80	100%	-	-	1.80	100%
c	Retaining wall : H= 2.50 m ; L= 75m	1.00	1.00	100%	-	-	1.00	100%
d	Retaining wall : H= 3.50 m ; L= 40m	1.00	0.00	0%	0.00	0%	0.00	0%
e	Retaining wall : H= 4.00 m ; L= 340m	3.40	3.40	100%	-	-	3.40	100%
f	Retaining wall : H= 6.00 m ; L= 350m	3.50	0.77	22%	0.48	14%	1.25	36%
g	Retaining wall : H= 8.00 m ; L= 50m	1.00	0.00	0%	0.00	0%	0.00	0%
h	Retaining wall : H= 10.00 m ; L= 140m	1.00	0.94	94%	0.00	0%	0.94	94%
i	Retaining wall : H= 10.00 m ; L= 140m Class B Concrete	1.00	0.94	94%	0.00	0%	0.94	94%
4a-ii	Breast Wall (RW-3) = 485 M							
a	Breast Wall H = 2.00 m ; L = 50 m	1.00	1.00	100%	-	-	1.00	100%
b	Breast Wall H = 3.00 m ; L = 360 m	3.00	1.54	51%	0.30	10%	1.84	61%
c	Breast Wall H = 4.00 m ; L = 75 m	1.00	0.00	0%	0.00	0%	0.00	0%
4b-i	Culverts (New Culverts)							
a	1 x 2 x 3 (Additional lane) New	1.00	0.95	95%	0.05	5%	1.00	100%
b	1 x 2 x 2.5 (25 deg skew) New	1.00	0.90	90%	0.05	5%	0.95	95%
c	2 x 2 x 3 (25 deg skew) Replacement	1.00	0.90	90%	0.05	5%	0.95	95%
d	1 x 3 x 4.5 (35 deg skew) Additional cut	1.00	0.90	90%	0.10	10%	1.00	100%
e	2 x 3 x 5 (35 deg skew) Box Culvert	1.00	0.70	70%	0.15	15%	0.85	85%
f	1 x 2 x 2.5 Repair existing slab Culvert	4.00	2.60	65%	0.00	0%	2.60	65%
g	1 x 2 x 2.5 (20 deg skew) New	1.00	0.90	90%	0.05	5%	0.95	95%
h	1 x 2 x 2.5 (22 deg skew) New	1.00	0.90	90%	0.00	0%	0.90	90%
i	1 x 2 2.5 (12.81 deg skew) New	1.00	0.90	90%	0.00	0%	0.90	90%

3. FINANCIAL PROGRESS (BUDGET / ACCRUED / ACCRUALS)

During the reporting month financial progress was 13% attaining total financial progress of 81%. Total accruals till end of reporting month was US\$ 71,742,234 i.e 95% .US\$ 10,080,781 was certified in the reporting month. Total accrued expenditure (amount certified) is US\$ 61,575,498 out of US\$ 75,613,533 against the approved PILs cost. PIL wise details are given in the table below:



- Total Amount Certified = \$ 61,575,498
- Work done amount not certified = \$ 4,437,284
- Balance Work = \$ 3,871,282

Details of Accruals and Accrued Expenditure

Sr No	PIL	Sub - Projects		Sub-Project Cost	PIL Cost	Till Previous Month		Current Month		Accumulative		Total Accruals	Balance Work
		Road	Bridges			Accrued Expenditure	Work done amount not Certified	Accrued Expenditure	Accruals	Accrued Expenditure	Work done amount not Certified		
1	PIL 01	Sec I	-	\$9,978,081	\$9,978,082	\$9,978,082	-	-	-	\$9,978,082	-	\$9,978,082	-
2	PIL 02	Sec II	-	\$9,383,483	\$9,383,484	\$9,383,484	-	-	-	\$9,383,484	-	\$9,383,484	-
3	PIL 03	Sec III	-	\$9,512,705	\$9,512,705	\$9,512,705	-	-	-	\$9,512,705	-	\$9,512,705	-
4	PIL 04	-	at Km 9+560	\$1,225,965	\$3,668,533	\$1,225,965	-	-	-	\$1,225,965	-	\$1,225,965	-
		-	at Km 23+750	\$1,392,302		\$1,392,302	-	-	-	\$1,392,302	-	\$1,392,302	-
		-	at Km 11+190	\$604,551		\$604,551	-	-	-	\$604,551	-	\$604,551	-
		-	at Km 22+925	\$445,715		\$445,715	-	-	-	\$445,715	-	\$445,715	-
5	PIL 05	Sec IV	-	\$7,663,172	\$25,444,269	\$6,196,850	\$1,123,450	\$800,327	\$31,037	\$6,997,177	\$354,159	\$7,351,336	\$311,836
		Sec V	-	\$8,580,296		\$6,459,516	\$1,613,064	\$1,077,546	\$148,409	\$7,537,045	\$683,927	\$8,220,972	\$359,324
		Sec VI	-	\$6,551,308		\$4,372,063	\$1,313,538	\$90,214	\$142,829	\$4,462,277	\$1,366,153	\$5,828,430	\$722,878
		-	at Km 18+475	\$218,068		\$184,034	\$33,083	-	-	\$184,034	\$33,083	\$217,117	\$951
		-	at Km 27+000	\$1,111,838		\$757,029	\$216,252	-	\$79,500	\$757,029	\$295,753	\$1,052,782	\$59,057
		-	at Km 27+250	\$1,073,617		\$875,900	\$137,897	-	\$18,463	\$875,900	\$156,360	\$1,032,260	\$41,357
		-	at Km 2+200	\$68,944		\$68,944	-	-	-	\$68,944	-	\$68,944	-
		-	at Km 11+560	\$105,296		\$37,579	-	-	\$67,717	\$37,579	\$67,717	\$105,296	-
6	PIL 06	Sec VII	-	\$9,012,926	\$17,626,462	-	\$6,392,202	\$4,132,934	\$462,205	\$4,132,934	\$2,721,473	\$6,854,407	\$2,158,520
		Sec VIII	-	\$8,613,536		-	\$7,972,442	\$3,979,760	\$454,632	\$3,979,760	\$4,447,314	\$8,427,074	\$186,461
Total				\$75,613,533		\$51,494,700	\$18,801,927	\$10,080,781	\$1,445,606	\$61,575,481	\$10,166,753	\$71,742,234	\$3,871,299

4. M&E ACTIVITIES DURING THE REPORTING PERIOD

4.1 Field Inspections

During the reporting month, the following frequency of field inspections by AGES technical staff was carried out:

- Project Manager = 01
- Quality Assurance Manager = 02
- M & E Specialist = 06
- Field Managers = 08
- Environmental compliance officer = 04
- Field Monitors = 27
- Material Engineer / Laboratory Staff = 20

4.2 IPCs Certifications

During the reporting month the following Interim Payment Certificates (IPCs) were Verified & Certified against the approved PIL cost.

PIL No	IPC No	Date of Certification	Amount Certified USD
05	04	October 28,2015	1,968,087
06	01	October 28,2015	8,112,694

4.3 Construction Activities Monitored

Sr	Activity	Unit	During the reporting Month						Completed till Previous Month	Completed in reporting month	Total Completed
			Sec 04	Sec 05	Sec 06	Sec 07	Sec 08	Sec 09			
1	Asphaltic Concrete Wearing Course	Km	-	-	-	-	-	-	31.113	0.000	31.113
2	Asphaltic Concrete Base Course	Km	-	-	-	-	-	-	31.163	0.000	31.163
3	Water Bound Macadam	Km	-	-	-	-	-	-	30.258	0.000	30.258
4	Rigid Pavement	Km	-	-	-	-	-	0.042	16.928	0.042	16.970
5	Granular Sub base	Km	-	-	-	-	-	-	47.389	0.000	47.389
6	Earth Work	Km	-	-	-	-	-	-	47.439	0.000	47.439
7	Culverts	Nos	-	-	-	1.0	-	-	124.0	1.000	125.0
8	Retaining Walls	Km	0.107	-	-	0.050	0.150	0.388	16.791	0.695	17.490
9	Breast Wall	Km	0.032	-	-	-	-	-	1.528	0.032	1.560
10	Drains	Km	0.046	0.390	0.103	0.050	2.200	2.750	43.376	5.539	48.920
11	Utility Ducts	Nos	-	-	-	-	1.000	-	79.00	1.000	80.00
12	Cause ways	Nos	-	-	-	-	-	-	11.00	0.000	11.00
13	Metal Guard Rail	Km	-	-	-	-	-	-	2.789	0.000	2.789
14	Diversion	Km	-	-	-	-	-	-	43.661	0.000	43.661

4.4 Field Observations & Follow up

Sr. #	Findings	Follow up	Status
1	Drains type D-3 thickness issue	Email : April 15 , 2015 Meeting : Aug 24 , 2015 Oct 15 , 2015	Revised Drawings would be shared by FWO
2	Substandard works in Retaining and Breast Walls	Emails : May 20, 2015 June 24, 2015 July 01, 2015 July 27 , 2015 Sep 03, 2015 Sep 15 , 2015 Oct 07 , 2015 Oct 27 , 2015 Meetings : July 07 , 2015 Aug 24 , 2015 Oct 15, 2015	Rectification in progress however No improvement observed
3	Improper backfilling at newly constructed retaining walls, breast walls, culverts, RCC Drains	Emails : May 28, 2015 June 17, 2015 Aug 11, 2015 Oct 07 , 2015 Meeting : Oct 15, 2015	Rectification in progress
4	Inlets pipe culverts choked due to dumping of excavated material / lose material	Email : Oct 12, 2015 Meeting : Oct 15, 2015	Rectification pending
5	Sub standard works at KM 10+500 (Baghiari Check Post).	Emails : May 28 , 2015 July 30, 2015 Oct 02, 2015	Rectification in progress
6	Sub standard repair of flexible pavement defective portion km 33+750 & KM 21+320 (Placing concrete over flexible pavement)	Meeting: Aug 24, 2015	Proper repairs pending
8	Rigid pavement panels at Km 40+244, 40+359 , 40 +392, constructed in sheer violation (Dowels missing /not aligned at expansion joints)	Email : Sep 08, 2015 Sep 18 , 2015 Oct 07, 2015 Meeting : Oct 15,2015	Rectification pending
9	Sub base laid on freshly concreted Culvert Slabs at Km 40+363, Loop III Km 2+259	Email : Sep 08, 2015 Sep 10, 2015	Rectification pending

4.5 Meetings

Conducted follow-up /coordination meetings with USAID, FWO / NESPAK reps.

Date	Participants	Venue
Oct 15, 2015	USAID, AGES, FATA Sect FWO, NESPAK	PD FWO Office, Peshawar

4.6 Laboratory Tests

The following table shows the frequency of laboratory tests conducted during the reporting month.

Sr. No.	Test	No of Tests conducted								
		Independent			Jointly			Total		
		Total	Fail	Pass	Total	Fail	Pass	Tests	Fail	Pass
1	Asphaltic concrete wearing course compaction test	-	-	-	13	0	13	13	0	13
2	Asphaltic concrete wearing course cores thickness test	-	-	-	13	0	13	13	0	13
3	Back fill material quality test	3	0	3	-	-	-	3	0	3
4	Back fill material field density test (FDT)	-	-	-	3	0	3	3	0	3
5	Aggregate quality test for concrete	12	0	12	-	-	-	12	0	12
6	Concrete compressive strength test	14	0	14	-	-	-	14	0	14
7	Stone Masonry quality test	5	0	5	-	-	-	5	0	5
	Total	34	0	34	29	0	29	63	0	63

5. ENVIRONMENTAL COMPLIANCE

The Environmental Monitoring Report is attached as **Annex-I**.

6. SECURITY SITUATION

The security situation report is attached as **Annex-II**.

7. MINUTES OF MEETING

Minutes of Meeting is attached as **Annex-III**.

**ANNEXURE-I
ENVIRONMENTAL MONITORING REPORT**

Environmental Monitoring Report

Environmental Compliance Officer: Shabir Ahmad Khan

Road Section under Construction

Section-IV (km: 19+000 to 21+100, km: 22+400 to km; 24+000 & Loop-II)

Section-V (km; 21+100 to km: 22+400 & km: 24+000 to 29+000)

Section-VI (km: 29+000 to 33+00)

Section-VII (km: 33+000 to km: 37+000)

Section-VIII (km: 37+000 to km: 41+000)

Section-IX (km: 41+000 to km: 43+465 & Loop-III)

Persons Consulted at Site

1. Mr. Mohammad Bilal, Site Supervisor, FWO
2. Mr. Mudassar Shah, Site Sub-Engineer, FWO
3. Mr. Mohammad Azam, Site Inspector, FWO

Work Status	Quality of Environmental Compliance
Work in Progress	Good
Work Stopped	Satisfactory
Work Completed	Not Satisfactory

Issues at Site

- At Construction Sites Health & Safety protocols are not followed by the labors mostly working without PPE's (Personal protective equipment's) however Health & Safety arrangements, such as first aid boxes and ambulance services are available at FWO Camp.
- At under construction road sections building, solid waste and excavated material are not properly placed. .
- Installation of traffic sign boards with reflecting material, speed breakers etc. were found missing.
- Km 39+700 & Loop III dumping of excavated material affected the vegetation / trees, require remedial measures.
- Km 21+100 & 28+100 excavated material along the cause way in the stream bed may cause the siltation / blockage of rain water and also damage the structure. Moreover these are pits / dug holes in the stream may cause pounding of water and requires filling.

Environmental Monitoring Check List for the Site

S. #	Activity	Mitigation Measures	Monitoring indicators	Field Observations
Construction Phase				
1	Use of heavy equipment	a. Set protocols for vehicle Maintenance. b. Check fuel level, deliveries, and use. c. Check pipes and joints for leaks. d. Tight & check generators cables and fuel lines. e. Prevent overfilling of main storage and vehicles tanks. f. Avoid parking of heavy equipments under trees to prevent soil compaction and damage to the roots of the trees.	Soil contaminations, stability and erosion	During the site visits, it was observed that heavy and light machinery was properly maintained and parked at FWO camps.
2	Flood protection	a. Culvert construction to control flood damages and provide safety to embankments. b. Take measures to protect road along the river side. c. Construction of retaining walls. d. Provide new causeways for a smooth flow to flood water during rainy seasons.	Road protection and Safety	Safety measures, such as side drains, culverts and retaining walls construction in sections VIII & IX are in progress to protect road from flood water and provide a smooth flow to wastewater disposal.
3	Handling and transportation of hazardous waste	a. Prevent dumping of hazardous materials near villages and water bodies. b. Burn waste oil, which is not reusable. c. Recyclable material should not contain heavy metals that are inflammable, investigate and use less toxic alternative products. d. Prohibit use of waste oil for cooking purposes.	Soil Contamination and Safety	During site visits, no hazardous material was found along the road site; therefore, no action as such is further required.
4	Handling of solid Waste	a. Site manager should feel responsible for collection and disposal of solid waste. b. Provide Training to the site personnel in waste management and its handling procedures. c. Separation of chemical waste for special handling. d. Record the amount of waste, generated recycled & reused e. Proper storage and well managed site practices will minimize the damage to potentially contaminate construction materials. f. Store general refuse in enclosed bins to control its further mixing with construction materials. g. Engage a reputable waste collection firm for waste collection and removal of general refuse at the site.	Toxicity, Soil Contamination and Pollution	During site visits, FWO staff was strictly suggested to comply with the solid waste management protocols to prevent the contamination of construction materials. So far the arrangements, to handle the construction materials at main storage were satisfactory. The solid waste management at sub-contractor sites was not satisfactory.

S. #	Activity	Mitigation Measures	Monitoring indicators	Field Observations
5	Construction crews, camps & Accommodation	a. Check quality & maintenance of accommodation for site crew. b. Avoid cutting of vegetation as much as possible. c. Provide sanitation, such as pit latrines to the site crew on temporary basis. d. Use of local labor. e. Screening test for potentially affected HIV and tuberculosis viruses' site crews. f. Provide education and enforced guidelines to local inhabitants. g. Set guidelines to prohibit poaching and plants collection. h. Provide an adequate and good quality of food to the work force. i. Drinking water should meet WHO standards, and clearly demarcated from water for construction purposes. j. Prohibit domestic pets / livestock to enter into the site.	Ground water pollution and conflicts with locals.	During site visits, it was found that the FWO camp was renovated and properly maintained in order to provide basic facilities to the construction crew, such as washrooms, kitchen, TV lounge, café shop, dining hall etc. The quality of food provided to the FWO labor force was good and found sufficiently enough. Other facilities, such as health hygiene were also found satisfactory.
6	Material handling, use, and storage	a. Securing of construction materials will ensure a safe passage between destinations for the transport system. Loaded vehicles shall be properly covered to prevent spillage, and contractor should be held responsible to clear them off. b. Transfer and deposit construction materials directly to the site for use. Avoid stockpiles to create less visual impacts. Leftover of any foreign materials on the site should clearly be off, and the project area should also be properly reinstated, affected by any construction activity. c. Avoid spray of any bitumen products on vegetation outside the road area. d. Avoid concrete mixing on ground. e. Use of wet gravel at site. f. Avoid direct fall of drainage water into sensitive areas. g. Control all runoff from batching plants so that cement do not contaminate water, and if any, it should be collected, stored and disposed of at a designated site. h. Collect and deliver empty cement bags to recycling plants. i. Storage of contaminated water should not allow to over flow, and will be protected from rain water.	Dust pollution	FWO labor force was suggested to provide safe passages to dumpers for carrying construction materials from main storage to work places. Further suggested that the construction material should be properly loaded and secured to prevent the material spillage and minimize the stockpiles visual impacts. The compliance about the proper placement and handling of building materials was not satisfactory, especially during retaining walls and culvert construction.

S. #	Activity	Mitigation Measures	Monitoring indicators	Field Observations
7	Materials extraction, Quarrying & logging	a. Identify environment friendly materials within budget. b. Use materials from local road cuts first, only if it produces an aggregate of materials for stabilizing surfaces and filling embankments. c. Project area should be properly restored and treated with erosion control measures once materials removed at site. d. Develop logging, quarrying and borrowing plans, and also take into account its accumulative effects. e. Take photos at site before the start of excavation, so that restoration can match the original site as much as possible. Also make sure that site quarries and gravel pits are invisible to travelers on road. f. Adhere and monitor the plans to minimize side impacts due to extraction activities. Try to modify the plans as much as required. g. Restore and sustain the site area once the extraction activity is over. h. Install drainage structures to direct the water away from pits. i. Implement safety protocols to minimize the risks occurring due to collapse of quarry walls, rocks falling, debris, or any other accidental falls from clefts. j. Discuss the use of retaining walls pits and water ponds with local community as an option used for crops, grazing of cattle, or similar use.	Change in landscape & Creation of water ponds.	FWO management was also advised for proper maintenance of the quarry area as well as the restoration of the original site, once the borrowing activities accomplished.
8	Site clearing & leveling	a. Minimize disturbance to local flora during construction activities as much as possible. b. Minimize the amount of clearance of small areas for active work once at a time. c. Avoid use of herbicides. Any such use should follow health and safety procedures to protect people and the environment. d. Limit for herbicides use should specified by the manufacturers. e. Clear the project area without destroying plants and turfs, and take measures to preserve and replant where ever is possible. f. Remove Vegetation during dry periods only, and preserve soil top surface if required re spreading. While if it is	Loss of vegetation, soil erosion, stability, water pollution, health of workers and local community.	During the site visits, no impact on vegetation was found as most of the project area is rugged, and of hilly nature. No use of herbicides was found as most of the project area is barren and devoid of the greenery and plantation. Appropriate measures were taken for the conservation of soil.

S. #	Activity	Mitigation Measures	Monitoring indicators	Field Observations
		<p>removed during wet periods, don't disturb soil just before the actual start of construction.</p> <p>g. Use of erosion control measures such as hay bales.</p> <p>h. Replant and re-vegetate the local flora on immediate basis once removed the equipment from site.</p>		
9	Excavation, cutting and filling	<p>a. Cover Piles with plastic sheets, prevent run off with hay bales, or use similar measures.</p> <p>b. Fencing around excavation activities.</p> <p>c. Investigate shallow over excavation and alternatives.</p> <p>d. Construction crews and supervisors must aware of the historic burials, socio-cultural and religious objects. And, if recovered should properly be guarded to avoid any destruction.</p> <p>e. Ensure that excavation is accompanied by a well-engineered drainage system.</p> <p>f. Don't fill the flow line of a watershed. In arid areas, even the occasional rains may create a strong flow of water in channels.</p> <p>g. Adopt best engineering practices, for example, don't use the soil alone, first lay a bed of rock and then gravel it.</p> <p>h. Balance cuts and fills, wherever is possible to minimize the earth work movement.</p> <p>i. Water sprinkling to avoid dust solution on road temporarily used for traffic.</p>	Soil erosion, stability and surface water contamination	<p>Excavation of side drains, culverts and retaining walls construction in section VIII is in progress. While the protocols compliance about the Health & safety and environmental issues are generally missing or insufficient.</p> <p>During site visits, it was also recommended to the subcontractors to properly cover and fence all the culverts construction at work places. A proper drainage system for the smooth flow of water fall during excavations is also needed at site.</p> <p>The flow line of watershed are generally filled with excavated material at many places, these may need to be removed for smooth flow of rain water.</p>
10	Traffic Control and management	<p>a. Need for practical efforts in order to control and accommodate traffic along the road as far as much as possible.</p> <p>b. Provide sign boards in order to give directions, and guide drivers about diversions.</p> <p>c. Provide proper traffic management training to the contractor staff at the site before the construction activities take place.</p> <p>d. Avoid as much as possible temporary by passes during land clearing at site.</p> <p>e. Maximum speed limit at project site for heavy machinery should not exceed 20Km/hr.</p> <p>f. Try to keep the road partly closed to provide all time maximum safe passage to the</p>	Health and Safety of workers & local population	<p>Proper traffic signboards for traffic control management are missing along the road. Therefore, FWO contractors are strongly suggested:</p> <ul style="list-style-type: none"> - Install traffic sign boards with reflective materials to maximize drivers' visibility at night. - Construction of speed breakers to specify maximum speed limit for heavy machinery at site. The maximum speed limit should not exceed 20Km/hr.

S. #	Activity	Mitigation Measures	Monitoring indicators	Field Observations
		vehicles/pedestrians g. Try to conduct work when traffic volume is low h. Organize a proper schedule in order to deliver sand trucks at the time of less traffic.		
11	Blasting	a. Allow minimum blasting as much as possible at site. b. Take Safety measures to provide protection to workers and locals from injuries due to falling of rocks and avalanches. c. Provide protective equipments to the workforce on individual basis.	Noise pollution and occupational safety	The activity is almost completed.
12	Sources of building materials	a. Develop logging, quarrying and borrowing plans to provide cumulative effects of environmental compliance at site. b. Adherence to plans and monitoring over impacts of extraction activities at site. Try to modify these plans as much as required. c. Fill in quarries and pits before the abandoning of the construction activity. d. Control runoff into pits.	Damages to the aquatic, terrestrial ecosystems erosion, siltation, and vector-borne diseases	The environmental compliance about the quarry areas is not satisfactory at previous quarry places. Therefore, FWO is strictly advised to fill the quarries and pits once the borrowing activities accomplished.
13	Dust Pollution	a. Water spraying. b. Covering of Trucks with tarpaulins.	Nuisance to the public, undermining the quality of air and water due to contamination	Problem of dust pollution has been observed during the reporting month, especially Km 37 and onward and at Loop III. There were some places having dust pollution, owing to heavy commercial traffic along the corridor and nature of soil. Mitigation measures in this aspect taken were not appropriate. In this respect special attention is required to control this issue, because the dust pollution impacts directly on human health. During the month the water sprinkled at some places but not regular and covering of trucks is not in practice.
14	Borrow Areas	These impacts of borrow areas can be reversed if a diligent restoration process is placed by the contractor as well as approved by the Highway Division.	Rugged landscape, its interference with the local aesthetics; posing of danger to livestock and local community children; holding of stagnant water and taking up of agricultural land.	The activities concerning borrow areas were mostly seen along the non-perennial flooded stream beds, where the restoration is generally made naturally after rain. However, the restoration at some places is required like land leveling etc. that has been not implemented.
15	Damages to the existing infrastructure	a. Locate different locations of existing infrastructure on both sides of road. b. Avoid damages to locations of	Facilities to the locals	Since project commencement, FWO demonstrated utmost care of the overhead and underground infrastructure facilities and avoided damages

S. #	Activity	Mitigation Measures	Monitoring indicators	Field Observations
		water pipes and electricity pylons etc.		to water pipes and electricity pylons etc. especially during culvert construction. The road is almost near to completion therefore no further issue is likely to be occurred.
16	Health & Safety of the workers	a. Prepare and implement a Health and Safety Plan at site. b. Exclude public from site area. c. Ensure that workers use Personal Protective Equipments. d. Provide Health & Safety Training (including HIV/AIDS transmission process) to all personnel; e. Follow documented procedures for all activities at site; f. Keep reports and records of accidents.	Workers and public at risk due to accidents at site	During the site visit, it was observed that the compliance about the Health and Safety protocols was generally followed at camp, while neglected at work site. In this regard, FWO officials were advised to observe the protocols compliance concerning the labor safety, preparing of H&S plan and keeping records about accidents, illness and treatments of workers etc. Moreover, training of H&S protocols compliance to the workers is also very important to ensure labor safety and good health at site. Also, health facilities, such as ambulance services, first aid etc. are available at FWO camp and provided to the workers at site when needed. PPEs (Personal protective equipment's) for the safety of labor were missing at project site throughout the project life.
17	Local Employment	Contractor should hire at least 50% of local workforce at project site.	Economic benefits to the local people	Majority of the FWO workforce are regular employees. Local labor is also hired when needed at site, especially with sub-contractors.
18	Others concerns like Resettlement etc.	a. Resettlement, if any. b. Provide pedestrians and road access to local people. c. Avoid social disturbances over Infrastructure damages, such as telephone cables, sewerage, water supply schemes etc. d. Avoid Social Conflicts with locals.	Resettlement & Social management	Due to the road construction on the existing corridor, there are some minor resettlement issues in the project area. These issues were resolved in peaceful manner, providing the same construction at other places. The FWO has provided the detail of all the relocated structures. The infrastructure facilities, such as water supply lines, telephone cables and electricity lines etc. are identified and relocated. During site visits, few social conflicts with locals were noticed in the whole period, but resolved properly.

ENVIRONMENTAL MONITORING



Km 39+700 loop iii, dumping of excavated material affected the vegetation/trees. require remedial measures



Km 18+900 Loop-III, excavated material in the stream, may cause the hurdle in the flow of water and soil erosion.



Km21 +100, construction of causeway protection wall, require proper placement of building material and solid waste.



Km 41+100 Loop III, Construction of side protection wall, require proper Health & Safety measures and proper



Km 35+300, Water sprayed for control of dust pollution



Km 21+100 Pits in the stream bed require proper filling/leveling for avoiding the water ponding.

**ANNEXURE-II
SECURITY REPORT**

MONTHLY SECURITY REPORT

1. **Situation Analysis**

KP/FATA has retained its “High” risk rating for the reporting period. The region warrants aggressive security measures to ensure safety at all levels in order to ensure personnel safety and project success.

2. **USAID’s Threat Assessment**

As per the USAID Threat Assessment the risk level in KP & FATA remains “High”.

3. **Update on On – Job Training of Staff**

Briefing / cautioning on safety / security of project staff has been carried out by the security officer to remain current on situation in the area and follow the project security protocol, to avoid any undesired risk / incident.

4. **Visit to PTR by Security Officer**

The Security Officer carried out visit to the project site with project staff and found the security environment overall conducive for task implementation.

5. **Detail of Security Related Incidents**

- Security forces arrested 18 suspected terrorists on October 17, 2015 in Khyber Agency and recovered local and foreign currencies worth sixty million rupees during a search operation.
- Tribal Union Journalists continued their protest rally at Babe Khyber Jamrud Tehsil in Khyber Agency on October 18, 2015 and demanded the government to protect their life and home.
- Unidentified gunmen kidnapped 21 workers of the Frontier Works Organization (FWO) from Neeli Kach area in South Waziristan Agency – FATA on Friday October 23, 2015.
- Seven FC men were killed at check post north west of Angor Adda in South Waziristan Agency border attack.
- A tribesman was killed on October 26, 2015 in broad daylight, in Jamrud Bazar Khyber Agency.
- One security forces person was killed while three were injured in a roadside explosion in Tirah valley of Khyber Agency on Friday October 30, 2015.

6. **Advisory**

All staff CMEP - KP is advised to be very vigilant and adopt all preventive / security measures as per project security plan and ensure the personnel as well as material safety.

**ANNEXURE-III
MINUTES OF MEETING**

MINUTES OF MEETING REGARDING FINALIZATION OF ADDITIONAL WORKS ON PTR

1. General

A meeting was held in the office of PD 491 Engr Group FWO, on Oct 15, 2015, in order to finalize the additional works to be carried out on the PTR, out of the saving, status of the latest reimbursement request and site issues.

2. Participants

- | | | | |
|-----------------------|------------------------------|---|----------------|
| a. USAID | Mr Jalil Ur Rehman | - | PM USAID |
| b. FATA Sectt. | Mr Muhammad Ali | - | PD FATA Sectt |
| c. FWO | | | |
| i. | Lt Col (Retd) Imtiaz Hussain | - | HQ FWO |
| ii. | Mr Muhammad Iqbal | - | GM, HQ FWO |
| iii. | Lt Col Muhammad Nadeem Afzal | - | CO 121 Q&CB |
| iv. | Maj Mohammad Ajmal khan | - | 2IC 121 Q&CB |
| d. NESPAK | | | |
| i. | Mr. Abdullah Jan Babar | - | CRE |
| ii. | Mr. Tasleem Alam | - | RE |
| iii. | Mr. Fahad Mushtaq | - | Senior Engr |
| e. AGES | | | |
| i. | Mr. Naseer Muhammad Khan | - | PM |
| ii. | Mr. Fakhr Uz Zaman | - | QAM (Roads) |
| iii. | Lt Col (R) Zafar Alam Khan | - | M&E Specialist |

3. The points discussed and decisions taken are as under:-

Sr. #	Point /Discussion	Decision / Action By
1	<p>Additional works required to be carried out and various options suggested by FWO/NESPAK & AGES were discussed, in detail. All the stakeholders agreed to the proposal recommended by AGES & discussed by all, during the joint visit to the sites.</p> <p>CO 121 Q&CB had reservations on the replacement of defective panels in causeways, as the repair/replacement of small portion will not bring about any change in the quality of riding. He suggested that instead the entire causeway be replaced, keeping within the available amount or if possible, an overlay be laid on all the causeways. After detailed deliberation, it was decided, by all, that only defective panels be replaced.</p> <p>Regarding Const of Landi Kotal City Roads, QAM AGES informed the house that AGES only support work on 1878 meters length of Road in the city.</p> <p>Details of decisions taken, on the additional works are as shown in the next (Decisions Taken) column.</p> <p>Additional Works amounting to Rs. 145.08 men were agreed by all, to be carried out, on the PTR.</p>	<p>Decisions taken on the additional works as per the List</p> <ol style="list-style-type: none"> 1. Additional Protection Works Sec-4 to Sec-9 – Agreed (Rs. 16.737 Mn) 2. Repair works for 7 x old Causeways – Agreed (35.549 Mn) 3(i) Jamrud ByPass – Option-1 Agreed (Rs. 22.721 Mn). (ii) Jamrud Bypass Exit Junction towards Torkham, Agreed (Rs. 13.81 Mn). (iii) Jamrud Bypass Retaining wall, Agreed (Rs. 2.902 Mn) 4. Landi Kotal City Roads – FWO to inform the stakeholders on 19/20 Oct, 2015, whether they (FWO) will undertake this portion or not. If FWO agrees to carry out this work, then Rs 26.520 Mn, agreed. 5(i) Earth Work on weigh station No.2 at Torkham- Agreed (Rs. 4.371 Mn). (ii) Conversion of Flexible Approaches into Rigid Pavements at both the Weigh stations – Agreed 9Rs. 19.577 Mn). 6. W&S Road surfacing – Agreed (Rs. 2.888 Mn) <p style="text-align: center;">Total Cost - Rs. 145.08 Mn</p>
2	<p>Details of Reimbursement certificate, forwarded by FWO, and its certification was discussed in detail. QAM AGES apprised the house regarding the deduction (Amount not verified) made from the Reimbursement Certificate. It was decided that a joint visit, to the site, by FWO, NESPAK & AGES reps will be made and the works, for which amount has been withheld, in the Reimbursement Certificate will be jointly verified on the ground.</p>	<p>FWO/NESPAK/AGES</p>
3	<p>Following Site issues were highlighted by AGES and discussed.</p> <p>a. Repair of damaged Retaining wall and Abutment of Bridge at KM 21+300, in front of the Filtration Plant and repair of the hollow portion of the Abutment wall was discussed in detail. AGES observation was that since the retaining wall had cracked and slightly tilted, it may be dangerous. FWO informed that proper repair of damaged portion has been carried out, moreover a new PCC Wall, to support the existing Retaining wall, is being constructed at this point.</p>	<p>FWO/NESPAK</p>

	<p>b. AGES highlighted the non construction of drain and lesser qty of cutting in Loop-2, for which amount was withheld in Reimbursement certificate.</p> <p>CO 121 Q&CB explained the reasons and informed that the dwgs were changed and the activity has been carried out as per the revised dwgs. Revised dwgs will be provided to AGES.</p> <p>QAM AGES replied that the issue has been brought in the notice of PD FATA Sectt & USAID, and the decision rests with them.</p>	FWO/NESPAK
	<p>c. AGES highlighted that FWO has not used Elastomeric Sealant on the Joints, in Rigid Pavement, from Sec-IV onwards, whereas the same was used in the last Sections.</p> <p>CO 121 Q&CB informed the house that FWO will carry out and complete this job.</p>	FWO/NESPAK
	<p>d. Following was discussed regarding the drains:</p> <ol style="list-style-type: none"> 1. Improper Backfilling, on both inner & outer sides. 2. Outlets of drain not yet constructed, in spite of repeated requests. 3. Cleaning of drains <p>CO 121 Q&CB replied that all these activities will be completed within 15 to 20 days.</p>	FWO/NESPAK
	<p>e. AGES asked for the supporting documents, from FWO, regarding the buildings/facilities, which were displaced & rebuilt by them. AGES point of view was that certain works, as given in the list, were not carried out or completed by FWO.</p> <p>CO 121 Q&CB replied that the supporting documents of all works will be provided.</p>	FWO/NESPAK/AGES
	<p>f. AGES highlighted the issues of Blocked Culverts, especially the Inlets, and requested that these be opened & cleaned by FWO.</p> <p>FWO agreed and said that the activity will be carried out.</p>	FWO/NESPAK
	<p>g. Issue of dumped filling material, of earthen dowels, along the Parapet Walls, which has reduced the height of dowels, was highlighted by AGES and requested that manual labor be employed by FWO to remove the surplus material.</p> <p>CO 121 Q&CB accepted the anomaly and confirmed that manual labor will be employed and the task would be completed.</p>	FWO/NESPAK
	<p>The meeting ended on a good note and a word of thanks by all.</p>	

**ANNEXURE-IV
PHOTOGRAPHS**

PAVEMENTS



KM 36+275~36+400 FW; Rigid pavement joints cleaning after saw cutting in progress



KM 0+300~0+500 LOOP-III; Rigid pavement saw cutting for Joint filling is in progress (7)



KM 7+500 LHS; Rigid pavement formwork fixing for weigh (6) station is in progress



KM 0+300~0+500 LOOP-II; Rigid pavement joints cutting for elastomeric joint sealant in progress



KM 7+500 LHS; Sub base 1st layer leveling & grading in Progress on weigh bridge # 1 pavement (2)

BRIDGES



Bridge at KM 21+320 DS side; Abt-II Gabion protection work in progress



Bridge at KM 21+320; Bridge Railing completed on existing bridge



Bridge at KM 27+000 US side; Gabion protection work in progress along Abt-I



Bridge at KM 27+250 US side; Abt-I Gabion protection work completed for both Abt-I & II

RETAINING WALLS



KM 2+050~2+125 LHS LOOP-III; Breast wall stone masonry in progress



KM 21+320~21+341 RHS; PCC Ret wall constructed in Nallah for protection of existing Repaired Ret wall



KM 32+750~32+825 RHS; Breast wall stone masonry for drain type D-4 is in progress



KM 40+310~40+363 LHS; Ret wall stone masonry in progress



KM 40+669~40+800 LHS; Ret wall stone masonry completed



KM 40+900~40+975 LHS; Ret wall stone masonry completed

CULVERTS



culvert 2+529 LOOP-III; curing for top slab is in progress



Culvert 11+841 W&S Road; Abt walls stone masonry completed



Culvert 22+925; MS Railing completed on Multicell culvert



Culvert 38+231 US side; wing walls concrete casted



Culvert 39+775; Head wall concreting in progress on US side of pipe culvert



Culvert 41+386 DS side; wing walls concrete casted

DRAINS



KM 26+900~26+950 LHS; Drain type D-1 top slab formwork in progress



KM 37+600~37+650 RHS; Drain type D-3 concrete finishing in progress



KM 38+550~38+612 RHS; Drain type D-3 completed



KM 39+100~39+195 RHS; Drain type D-3 in progress



KM 41+350~41+400 LHS; RCC Drain top slab in progress



KM 41+800~41+900 RHS; RCC Drain wall construction in progress

CAUSEWAYS



Causeway at KM 28+095 DS side; Gabion protection work in progress



Causeway at KM 28+095 US side; Gabion protection wall in progress



Causeway at KM 31+667 DS side; Gabion protection work in progress



Causeway at KM 42+000 DS side; Gabion apron completed



Causeway at KM 42+000 DS side; Gabion protection wall in progress



Causeway at KM; 32+657 DS side; Gabion protection work in progress

FIELD / LAB TESTS



Casting of A-1 class concrete cylinder for RCC drain slab



Coring of AWC at KM; 33+800



Coring of AWC at KM; 33+800



Crushing of Concrete cylinders at M&E lab



Sampling of Concrete aggregates for quality tests



Sampling of Concrete aggregates for quality tests